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CHRONOLOGY

WS 117L BACKGROUND

Fall - 1945

German work in the field of Earth-circling satellites was acquired by the Armed Forces.

The U. S. Navy let a study contract with the Glenn L. Martin Company in this field.

Spring - 1946

U. S. Air Corps requested the RAND Corporation to perform studies on the feasibility of artificial satellite vehicles. First job done by the new RAND Corporation. These studies continued through 1953.

April - 1947

The Bureau of Aeronautics of the U. S. Navy informed the RDB that an earth satellite vehicle is technically possible and requested they be designated as coordinating agency.

September - 1947

RAND Corporation determined that a satellite is technically feasible.

December - 1947 - January - 1948

Navy and the Air Force requested assignment of any Earth-circling satellite developments to their respective services. On 16 January 1948, the Navy withdrew their "sole right" claim.

12 January 1948

General Hoyt S. Vandenberg, in a policy statement on a satellite vehicle, noted that R&D on a satellite vehicle should be pursued as rapidly as state-of-the-art permitted.

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February - 1948

USAF requested the RAND Corporation to establish a program for a study of satellite development. Shortly afterwards the Research and Development Board (RDB) concurred with the Air Force's undertaking this program and stated that RAND should have the sole responsibility in this field. The Navy and the Glenn L. Martin Company activities in the area were phased out at this time.

6 November 1950

RAND recommended that the Air Force initiate component research and development work on a small portable nuclear reactor, a television and communication system and an orbital attitude sensing and control system.

1 April 1951

RAND issued report on the utility of satellite vehicles and the use of satellite vehicles to televise ground scenes and weather information to surface stations. Report concluded feasibility and utility, and directed particular attention to major problems in payload technical development cited under entry of 6 November 1950.

1 November 1951

Air Force made arrangements for the AEC to begin work on small, portable nuclear reactors as a source of auxiliary power. Studies were initiated with four companies, the Bendix Corporation, Allis-Chalmers, the Vitro Corporation and Frederic Flader.

1 March 1952

RAND Corporation initiated a subcontract with North American Aviation, Inc., for the study of a satellite orbital attitude sensing and control

2 June 1952

The four studies of small, portable nuclear reactors were completed. All four contractors concluded that such reactors are technically feasible.

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16 June 1953

RAND Corporation initiated a subcontract with the Radio Corporation of America for the study of optical systems, TV camera, radiation, kinescope recording, correlation and presentation, and reliability in connection with the satellite reconnaissance system.

2 July 1953

The Communications Laboratory of WADC initiated a contract with North American Aviation, Inc. for study of a pre-orbital ascent guidance system for a satellite vehicle.

3 December 1953

Hq, Air Research and Development Command directed Wright Air Development Center to embark on a research and technical development program to demonstrate the feasibility of the major components of a satellite reconnaissance system; specifically the television-optical subsystem, attitude and guidance control equipment and the auxiliary power plant.

23 December 1953

At the Wright Air Development Center, cognisance of Project Feedback was transferred from the Systems Planning Office to the Bombardment Missiles Branch of the Weapons System Division. Satellite effort was re-named Project 1115. Elements of a Weapon System program office was established at WADC.

8 January 1954

Project 1115 acquired an MX number, MX-2226, and an unclassified title, "Advanced Reconnaissance System." The reasoning behind selecting these additional numbers and names was to separate the new effort from Project Feedback of the RAND Corporation, which had received widespread promulgation in the Armed Services.

28 January 1954

WADC Communications and Navigation Laboratory initiated Task No. 44147, Attitude Guidance and Control for the Advanced Reconnaissance System. North American Aviation, Inc. was the contractor.

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March - 1954

Final RAND report on Advanced Reconnaissance System (Project Feedback). System feasibility established. System design studies recommended.

1 May 1954

Project 1115 was submitted to and approved by Hq ARDC.

15 June 1954

WADC Task No. 70843, Solar-Electrical Energy Converter, Aeronautical Research Laboratory initiated. The Harshaw Chemical Company received the contract for research and development work.

30 August 1954

Project 1115 was documented under Air Research and Development Command Manual 80-4.. Approval was given by Hq ARDC.

14 September 1954

ARDC Project Development Directive, PDD No. 1115, was issued. Implementation of Development Plan No. 1115 was directed.

14 October 1954

Rome Air Development Center initiated Task No. 15000, Intelligence Parameters Study for Advanced Reconnaissance System.

15 October 1954

Rome Air Development Center initiated Task No. 15001, Study of Intelligence Processing Methods for Advanced Reconnaissance System.

8 November 1954

WADC Power Plant Laboratory initiated Task No. 30291, Auxiliary Power Plant for Advanced Reconnaissance System.

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November - 1954

a. Task No. 41700, Effects of Nuclear Radiation on Electronic Components, was initiated by the Electronic Components Laboratory.

b. A System Requirement, SR No. 5, was issued by Hq ARDC. This document directed WADC to "conduct system design studies on the Advanced Reconnaissance System."

27 November 1954

ARDC published System Requirement No. 5 on Advanced Reconnaissance System.

17 December 1954

An unclassified name, PIED PIPER, was assigned to the Advanced Reconnaissance System.

21 December 1954

WADC initiated Task No. 21010, Design Study-Advanced Reconnaissance System-MX-2226.

16 March 1955

Air Force issued GOR 80(SA-2c) for a strategic reconnaissance satellite weapon system.

March 1955

System design study proposals solicited from LAC, RCA, Martin, Bell Telephone. Bell Telephone declined to propose.

May - 1955

NSC action 5520 directed the Department of Defense to develop capability of launching small scientific satellite by 1958. Effort not to prejudice or interfere with other satellites for research or intelligence. Emphasized peaceful purposes. Would be a technical step to demonstrated satellite achievement with prestige and psychological benefits. Cost estimated as $15-20M. (Vanguard the result).

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10 October 1955

General Power directed that Advanced Reconnaissance System development program be transferred to WDD.

13 January 1956

Memorandum of Understanding on transfer of Advanced Reconnaissance System from ARDC Detachment No. 1 to WDD. Generals Schriever and Estes agreed WDD office would be established about 15 February 1956; take over Advanced Reconnaissance System program.

14 January 1956

WDD published a WS 117L Preliminary Development Plan in response to a request from Hq ARDC. Based on a possible need to demonstrate an orbital capability within the IGY, total cost was estimated at $95.5M.

12-20 March 1956

A joint Air Force contractor evaluation board met at Wright-Patterson AFB to evaluate the design studies prepared by RCA, Glenn L. Martin, and Lockheed Aircraft. Board found Lockheed as best qualified and recommended award of contract to Lockheed for development of WS 117L. Infra-red proposal made by Lockheed. Later became MIDAS.

2 April 1956

WDD published WS-117L Advanced Reconnaissance System Development Plan.

22 May 1956

WDD authorized to announce Lockheed selection, expend remaining Project 1115 funds on 117L. No other funds available.

24 July 1956

WDD Development Plan for WS 117L approved by Hq USAF.

3 August 1956

USAF (DCS/D) issued Development Directive No. 85 approving WS-117L, Advanced Reconnaissance System. WS 117L given 1A

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priority, 1-6 precedence rating. But "because of fund limitations, only $3M of FY 1957 P-600 series funds are available to your Command to initiate this development."

28 August 1956

WDD pointed out the effect of FY 1957 WS 117L fund limitations on WS 117L development, and requested $21.9M additional FY 1957 funds for the program.

23 October 1956

USAF again cited limitations on WS 117L P-600 funds. Guidance given WDD included: 1) prolong development, 2) maintain minimum balanced rate of development progress on vehicle and components instead of on Development Plan target completion dates. TWX stated that Headquarters attempting to reprogram $7.M more P-600 FY 1957 funds.

29 October 1956

Contract on WS 117L given to Missile Systems Division, Lockheed Aircraft (Contract AF 04(647)-97).

21 November 1956

WDD submitted FY 1957 WS 117L fund requirements totalling $17.8M in P-100 and 200 to DCS/D.

29 November 1956

Secretary of the Air Force Conald Quarles was briefed on WS-117L status and program.

10 December 1956

Lt General D. L. Putt, DCS/D, informed ARDC that FY 1957 P-600 funds for WS 117L had been increased from $3M to $5M, and efforts were under way to reprogram $5M more. For management planning, WDD should count on $10M total P-600 for FY 1958 also. Other efforts would be made to get P-100 and 200 funds. Other guidance: 1) develop and test components, 2) do not make mockup until advised, 3) do not plan launch before FY 1961.

30 January 1957

General Schriever informed DCS/D that lack of FY 1957

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P-100 and 200 funds was preventing procurement of material and equipment essential to maintaining a balanced system oriented development program, and that P-600 funds ceilings for FY 1958 were considered inadequate to meet the program minimum component development and test needs.

9 February 1957

Answering a Department of Defense request, WDD furnished DCS/D with information on possible use of WS 117L as IGY satellite. Indicated it could be done at cost of $66M by late 1958 or early 1959 if ATLAS development was satisfactory. WDD not enthusiastic about approach because of possible interference, short development time.

11 February 1957

WDD warned LMSD that they had $8.5M on contract through 30 June 1957, and that they should not overcommit.

6 March 1957

ARDC received guidance letter from DCS/D, USAF, on planning and funding requirements for WS 117L. Indicated that P-100 and 200 FY 1957 funds were over-programmed. Mention was made of Secretary Quarles' views regarding a definite slowdown, and emphasis on component development to insure greater success. No orbital testing was to be undertaken in development prior to January 1960. Development of WS-117L should be conducted along conventional lines. $10M P-600 funds were available. For FY 1958, estimates were that a total of $35M would be available for WS 117L.

2 April 1957

WDD published Systems Development Plan, Advanced Reconnaissance System, WS 117L for various degrees of operational uses, 1960-1965.

8 July 1957

LMSD informed AFBMD* they needed $7.9M to fund the WS 117L program between 15 August and 30 November 1957.

*Name of Western Development Division (WDD) was changed to Air Force Ballistic Missile Division (AFBMD) 1 June 1957.

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10 July 1957

WS 117L assigned unclassified nickname New Horizon.

13 August 1957

LMSD informed by AFBMD that WS 117L FY 1958 funds totaling $3.9M were available to carry the program through 30 October 1957. Adjust program accordingly.

21 August 1957

AFBMD informed LMSD that WS 117L FY 1958 P-600 funds could not exceed $9.6M, with no more than 50% expended in the first six months.

3 September 1957

AFBMD informed by DCS/D that only $10.0M P-600 FY 1958 WS 117L funds were available, and as yet no P-100 or 200 funds, though efforts were being made. Limit activity to $10M funds. Authority to mockup satellite vehicle granted.

16 September 1957

Air Council reviewed, approved WS 117L program as presented, approved go-ahead as fast as possible consistent with good management.

19 September 1957

AFBMD submitted WS 117L FY 1958 and 1959 austere funding requirements to DCS/D. Stated that $48M in FY 1958 would allow initiation of the flight test program by mid-CY 1958.

9 October 1957

Following Sputnik, in answer to Hq USAF request as to efforts and resources required to accelerate the ICBM and IRBM, an estimate was made for WS 117L. AFBMD pointed out that a large amount of funds would be needed to regain lost time due to fund strictures and lack of firm program approval. With $99.2M FY 1958 and $121.7M FY 1959 funds program could be advanced six months to one year if priority were given effort.

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10 October 1957

Secretary of the Air Force James Douglas approved the WS 117L program as presented to the Air Council as a planning objective, subject to Secretary Quarles' review.

15 October 1957

$35.1M (FY 1958) P-100 funds authorised WS 117L by DCS/D. Later (19 October) AFBMD told to limit obligations on this procurement authorisation to $15.5M through January 1958. This was rescinded in November. No P-200 funds to date.

16 October 1957

DOD Assistant Secretary Quarles was again briefed on WS 117L, without resolution of need for acceleration.

12 November 1957

RAND Research Memorandum 2012, A Family of Recoverable Reconnaissance Satellites published. Prepared by M. E. Davies, A. H. Katz and others, it proposed using THOR plus Aerojet (second stage of Vanguard) as boosters. This became basis of Able and Discoverer programs (with different second stages).

27 November 1957

AFBMD requested that ICBM/IRBM overtime policies be extended to WS 117L, replacing the existing 2% of programmed manhours overtime limitation.

20 December 1957

Subsystem "G", WS 117L, (ICBM Attack Alarm) preliminary design completed. Fabrication of experimental payload units begun.

6 January 1958

LMSD submitted a program acceleration plan for WS 117L (LMSD-2832) as requested by AFBMD in November 1957. Accelerated program was based on Thor-boosted early flight with a recoverable capsule as proposed by RAND. Flights to begin in late

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1958. Increase manufacture of LMSD vehicles. Atlas-boosted flights to begin in early 1959. General Schriever approved plan in principle, subject to reviews of special areas.

21 January 1958

AFBMD notified that Assistant Secretary of Air Force (Materiel) had approved use of overtime on WS 117L "as may be necessary to meet the approved objective."

22 January 1958

Program acceleration plan submitted. Plan included a photographic reconnaissance configuration of a Thor-boosted recoverable reconnaissance package.

23 January 1958

Chief of Staff USAF approved acceleration of WS 117L program. FY 1958 funds would be provided when actually required.

29 January 1958

Contract AF 04(647)-181 given LMSD for Thor-boosted test vehicles. This became the DISCOVERER program.

February - 1958

Hq USAF considered expanding Project Able to include WS 117L test vehicles. AFBMD recommended against this because 1) Able configuration not yet proven; 2) would disrupt Able schedules. After several successful launches, their use as WS 117L test vehicles could be reprogrammed if authority to proceed were given immediately.

3 February 1958

President Dwight D. Eisenhower directed that highest and equal national priority be given to ballistic missiles, satellites and defense programs. (ICBM, IRBM, WS 117L, WS 224A)

24 February 1958

Secretary of Defense Neil McElroy approved in principle

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the proposed acceleration of WS 117L to be conducted under direction of ARPA. AFBMD to submit a development plan to ARPA.

26 February 1958

WS 117L Site Selection Board convened at AFBMD. Board chaired by Colonel F. C. E. Oder, members from AFBMD, SAC, AMC, Hq USAF. Board to select tracking and data acquisition sites for the system.

28 February 1958

Mr. Roy Johnson, ARPA, in a memorandum to the Secretary of the Air Force concluded that:

a. ATLAS/WS 117L Project should be accelerated and given highest national priority in order to attain an initial capability at an earliest date.

b. Thor-boosted interim reconnaissance system with light-weight recoverable capsule was a duplication of "A". Do not pursue this program.

c. To attain early flights of Lockheed second stage, Air Force may find it desirable to use Thor-boosted test firings. Thor boosters cheaper and available sooner than ATLAS, also could be used with second-stage Lockheed vehicle for experimental recovery flights with animals.

March 1958

AFBMD activity in interim visual reconnaissance program (II A) terminated in accordance with Mr. Johnson's message of 28 February.

4 March 1958

Chief of Staff, USAF, directed that WS 117L and other space projects which depend on the use of IC/IRBM's be administered in same manner and with same procedures as IC/IRBM programs. ("Gillette procedures"). AFCOM to be central point of contact, coordination. Approved development plans would constitute action documents.

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4 March 1958

OSD approved acceleration of WS 117L to include launching satellite test vehicles based on THOR booster.

12 March 1958

Lockheed notified that Hq USAF had disapproved the WS 117L recoverable reconnaissance payload program. (WS 117L Program IIA). LMSD notified to reorient THOR-booster WS 117L program for acceleration using THOR-boosted flights for early WS 117L tests--orbital flights for exercise of ground-space communication network, concept for recoverable capsule, for aero-medical research flights.

14 March 1958

Air Force Ballistic Missile Committee reviewed accelerated WS 117L program, agreed on use of THOR booster for system test in orbital satellites.

19 March 1958

AFBMD informed that all statements on the nature and timing of ARPA missile and satellite projects will come from OSD.

April - 1958

AFBMD requested by USAF to revise 15 March WS 117L Development Plan financial annex to downward from $214M to $152M and to keep program flexible.

April - 1958

Biosatellite programs added to Advanced Reconnaissance System--recoverable capsule.

April - 1958

UMDH engine development initiated. (AGENA)

28 April 1958

DOD directed interchange of technical information and visits on satellites and space programs between US Army and Air Force up to SECRET. Refer other cases to headquarters.

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30 April 1958

NORAD expressed interest in infrared capability of WS 117L as an air defense attack alarm against ICBM launches.

May-June 1958

Ft Stevens, Oregon, selected as location of WS 117L NW tracking and data acquisition station.

May - 1958

Advanced Reconnaissance System renamed SENTRY.

9 May 1958

Lt General Francis H. Griswold, V/CinC/SAC, in a letter to Commander ARDC, pointed out that SAC enthusiastically supported WS 117L. Reconnaissance features a tremendous potential, especially infrared, photographic, electronic. Also a requirement for a communications satellite, high altitude (22,000 miles), advanced surveillance systems.

19 May 1958

Cognizance over WS 117L formally assigned to ARPA. (DOD Directive 3200.5).

19 May 1958

Subsystem "G" (ICBM Attack Alarm) Engineering Analysis completed.

21-22 May 1958

First meeting, ARS Weapon System Phasing Group.

20 June 1958

USAF informed major commands that WS 117L carried highest national priority, DX rating of .011 Brickbat, precedence rating of 1-1. Informed commands that field activities would begin in early 1959.

30 June 1958

ARPA Order No. 9-58 issued. Announced Secretary of

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Defense had approved the assumption of responsibility for the Advanced Reconnaissance System (WS 117L) by ARPA, AFBMD to continue the project; to submit a detailed development and financial plan to ARPA. $22.7M made available initially.

1 July 1958

AFBMD Advanced Reconnaissance System (WS 117L) "New Horizon" Development Plan published. Funding program FY 58, $60M; FY 59, $215M, later revised to FY 58, $67M; FY 59, $198M. Plan contained both THOR-boosted version for component test and demonstration of orbital capability, and ATLAS-boosted reconnaissance program.

July - 1958

Initial arrangements made by AFBMD to organize a unit capable of aerial recovery of WS 117L capsules. 9/C119J aircraft to be used. "Aerial Snatch" called Project Hot Hand. Aircraft to come from TAC, 6593d Test Squadron (Special) activated by ARDC GO 38, effective 1 August 1958. Unit to be based at Hickam AFB.

July - 1958

ARPA noted to Secretary of Defense that the question of the operating agency for WS 117L should be reviewed in the light that many agencies have an interest in the information.

July - 1958

WS 117L Site Selection Board selected NE tracking and data acquisition station site at New Boston Gunnery Range, N.H. Only site which met criteria and BOD needs.

July 1958

ARPA expressed interest in features of WS 117L (subsystem "G") as an infrared attack alarm system.

15 July 1958

ARPA directed that monthly and quarterly progress reports on WS 117L be forwarded directly to them. Form prescribed by ARPA.

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17 July 1958

ARPA Order No. 9-58 funds increased to $30.7M to purchase four WS 117L upper stages. (Amendment No. 1)

18 July 1958

Air Force authorized by ARPA to procure long lead time items to support THOR-WS 117L firing schedule which is to begin in November 1958.

20 July 1958

ARPA requested briefing on WS 117L with special reference to applicability of subsystems and components to other uses such as communications, weather, and scientific measurements, use of ground components for general satellite tracking. Also wanted information on advanced reconnaissance satellite-engines, television, infrared, power supplies.

20 July 1958

Director, ARPA, informed Secretary of the Air Force $215M was programmed for WS 117L in FY 1959. $30.7M available to AFBMD. Balance subject to Congressional action, BOB apportionment. Total included bio-medical project. AFBMD informally requested to submit a new development and funding plan within these limitations, and to indicate how they would use more money if additional funds are available.

22 July 1958

ARDC GO No. 38 designated and organized 6593d Test Squadron (Special)--purpose - for aerial recovery of satellite payloads. (In place of AFFTC for training, Aug-Dec 58, then to Hickam AFB, Hawaii.) Squadron assigned to Det #2, ARDC, AFBMD, for administrative and operational control.

22 July 1958

Ottumwa, Iowa (Naval Air Station) picked for location of WS 117L Central Tracking and Data Acquisition station.

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28 July 1958

AFBMD held technical review of "Attack Alarm System" (Infrared System). Probability of success judged quite high.

August - 1958

New Boston Bombing Range, Grenier AFB, N.H., approved as site of Northeast tracking and data acquisition station.

4 August 1958

ARPA Order No. 9-58 funds increased to $50.7M. (Amendment No. 2).

5 August 1958

Procurement of long lead time items authorized. THOR-WS 117L vehicle procurement increased an additional 9 over 10 authorized to a total of 19. Intent to utilize these for bio-medical and other measurements of space phenomena. Prepare new development plan based on $215M FY 1959 ARPA program.

22 August 1958

AFBMD established a Management Survey Team to investigate all aspects of WS 117L Program Management at LMSD, LAC.

25 August 1958

ARPA Order No. 9-58 funds increased to $70.7M. (Amendment No. 3).

September 1958

WS 117L interim tracking and telemetry facilities beneficially occupied at Vandenberg AFB, California; Naval Air Station, Pt Mugu, California; Kaena Point, Oahu, Hawaii; Annette Island, Alaska; Kodiak Island, Alaska.

September - 1958

Former Naval Air Station at Ottumwa, Iowa, approved as the site of the WS 117L central tracking and data acquisition station.

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15 September 1958

AFBMD published Advanced Reconnaissance System (WS 117L) Development Plan. Contained both THOR-and ATLAS-boosted phases of program. Funding program, FY 59, $231M; FY 60, $296M. Plan is profusely illustrated and explanatory in detail.

15 September 1958

AFBMD published SENTRY Operational Annex to Advanced Reconnaissance System Development Plan. Contained operational concept, command responsibilities, system characteristics. Operations, personnel and training, logistics, facilities, schedules, funding program.

17 September 1958

AFBMD recommended acceleration of Attack Alarm Development to ARPA. Development Plan prepared which included: August 1959 first test launch and January 1961 first operational launch.

17 September 1958

ARPA requested that term SENTRY instead of WS 117L be applied to Atlas Operational Capability previously designated as Pioneer visual, Pioneer ferret. Budget these separately, budget rest of program as improved military space systems.

22 September 1958

General Power, CINCSAC, briefed on Attack Alarm Development Plan. General Anderson, ARDC, Air Force Ballistic Missile Committee and Air Force Staff briefed on Attack Alarm Development Plan.

23 September 1958

In a personal TWX, General Power informed General LeMay that he was disturbed over the reluctance of agencies to support an early reconnaissance and infrared attack alarm features of WS 117L.

25 September 1958

ARPA Order No. 9-58 funds increased to $136.2M (Amendment No. 4).

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25 September 1958

Director, ARPA, informed AFBMD he was not able to approve current SENTRY Development Plan. Reasons: AFBMD FY 1959 funding plan exceeded ceiling of $215.M; achievements of major program objectives have been substantially delayed in spite of proposed funding level increases; FY 1960 budget is in excess of a considered realistic funding level. ARPA sent an Ad Hoc Project Group out to investigate, evaluate and recommend.

27 September 1958

GOR No. 80(SA-2c) amended to include specific requirement for ICBM warning and tracking. (Attack Alarm or MIDAS)

29 September 1958

Responsibility for execution of ARPA Order No. 9-58 transferred from Commander AFBMD, to Commander ARDC. (Amendment No. 5)

3 October 1958

ARPA Ad Hoc Committee advised contractor (LMSD) that Attack Alarm would not be supported as part of SENTRY program.

7 October 1958

In a personal message, General LeMay informed General Power that the Air Staff was solidly behind WS 117L, but basic budgetary restrictions prevented reprogramming response to this problem in a manner similar to wholly Air Force programs. In his opinion ARPA was also sympathetic but was suffering under an arbitrarily imposed financial ceiling. Assured General Power that USAF was providing support for ICBM Attack Alarm System.

8 October 1958

AFBMD informed ARDC of ARPA apparent intent not to fund Attack Alarm development during FY 1959.

10 October 1958

ARPA directed AFBMD to cancel all actions in WS 117L

19

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SENTRY program directed toward an ATLAS launch capability at AFMTC, but not to cancel boosters since they may be used at Vandenberg AFB.

10 October 1958

AFBMD informed ARDC that $1.8M required to continue Attack Alarm from 15 October thru 15 December.

14 October 1958

Hq USAF directed work continue on Attack Alarm development with funds to be provided.

24 October 1958

Hq USAF provided Attack Alarm funds required to continue program to 15 December.

27 October 1958

General Partridge briefed on Attack Alarm Development Plan.

1 November 1958

DCS/D authorized $2.4M FY 1958 P-244 funds for WS 117L.

5 November 1958

ARPA Order No. 38-59 proposed THOR-boosted flight to test Attack Alarm payload. ARPA funds program $.75M for period November thru January 1959. The study and development begun as subsystem "G" of WS 117L was to be continued in accordance with order as an independent project to result in an orbitally flight tested missile defense alarm satellite. (MIDAS)

17 November 1958

ARPA Order No. 41-59 authorized the design and construction of Sentry launch complex at Pt Arguello at $6.65M.

20-21 November 1958

Strategic, Air Defense and Reconnaissance panels of Weapons Board briefed on capability of MIDAS System.

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25 November 1958

ARPA directed ARDC to eliminate two of the small primate shots from the DISCOVERER test series. Two mouse, and one small primate shot were authorized. The two cancelled small primate boosters were to be reassigned.

4 December 1958

Mr. Roy W. Johnson, Director, ARPA, informed the Under Secretary of the Air Force that a program to develop a number of systems and techniques which would be employed in the operation of space vehicles had been inaugurated. This program, to be known as DISCOVERER, was to include THOR launchings associated with WS 117L plus other similar projects not operationally oriented. DISCOVERER-THOR costs were to be separated from WS 117L program (SENTRY). Separate development plans and progress reports were to be made for each. Tentative reallocation of funds were as follows: DISCOVERER, FY 1959, [redacted] 1027 FY 1960, [redacted] 1027 SENTRY, FY 1959, $10M; FY 1960 $100M. Secretary of Defense and ARPA agreed to assign initial operation of SENTRY to ARDC "for the next several years and until final objectives are obtained." Tentative "centers" for the program were to be operated by ARDC.

5 December 1958

Mr. Roy W. Johnson, Director, ARPA, informed Under Secretary of the Air Force that reorientations of the DISCOVERER and SENTRY programs were proposed, and a study and review would be made. For this review, Air Force was to assume that $213.3M was available in FY 1959 and $160M in FY 1960. AFBMD should not exceed these resources. In areas where cancellations were contemplated, no procurements beyond those absolutely necessary should be made.

7 December 1958

Mr. Roy W. Johnson revised his 25 November 1958 letter concerning biomedical payloads for DISCOVERER program to provide for one successful primate recovery up to a total of three attempts, if necessary and desired, to be in lieu of payloads in the series of 13 flight vehicles.

11 December 1958

Responsibility for execution of ARPA Order No. 9-58 transferred from Commander, ARDC to Secy of AF (Amendment No. 6)

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11 December 1958

AFBMD informed USAF that $9.3M was needed to continue "G" Attack Alarm (MIDAS) from 15 December 1958 to 15 February 1959.

15 December 1958

Hq USAF funded MIDAS $1.5M for 15 December thru 15 January 1959.

15 December 1958

AFBMD briefed AF and ARPA on WS 117L reorientation in response to 4&5 December ARPA directives. AFBMD also submitted alternate program reorientation suggestions.

16 December 1958

ARPA Order No. 48-59 to Sec AF requested Sec AF to continue study, development, and launch operations originally associated with the THOR phase of SENTRY program under ARPA Order No. 9-58, as an independent project identified as DISCOVERER-THOR Project. Earlier costs will be transferred to the new project. Prepare a new financial plan by 15 January 1959.

17 December 1958

Mr. Roy Johnson, in a memorandum for the U/Sec AF, stated that the fundamental objectives of the ARPA SENTRY R and D program should be development of improved area reconnaissance with recovery techniques, point reconnaissance development. Surveillance should be based on planned film readout, reconnaissance on film recovery. Fly recoverable ATLAS-boosted capsule early in 1961, with surveillance camera system in mid-1961. Funds for ARPA SENTRY: FY 59, [redacted] FY 60, $160M. 1959 figure includes 13 DISCOVERER flights. To meet fund limitations, USAF requested to delete: 1) high energy fuels program for second stage; 2) development and test of 6 readout cameras and to consider use of recoverable ATLAS space vehicle as test bed for surveillance camera and ferret systems; and to consider use of ATLAS with 1960 operational recovery program for additional uses, etc. Mr. Johnson announced that ARPA supported USAF proposed operational program as presented.

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19 December 1958

Amendment No. 1 to ARPA Order 41-59 authorized construction of a Guided Missile Assembly Building for SENTRY program at Vandenberg AFB site. Increased funds from $6.65M to $9.82M.

19 December 1958

Air Force contracts with LMSD (-97, -181) combined.

Late December - 1958

First THOR boosted DISCOVERER on pad at Vandenberg AFB awaiting launch.

December - 1958 - January 1959

Intense activity at AFBMD in separating various phases of the WS 117L program, preparing separate development plans on THOR-DISCOVERER, SENTRY, MIDAS, and CARROUSEL phases of the program.

15 January 1959

Hq USAF funded MIDAS $1.5M (P-600) for 15 January 1959 thru 15 February 1959.

19 January 1959

Amendment No. 7 to ARPA Order 9-58 increased available WS 117L funds from $136.2M to $138.2M.

21 January 1959

First launch attempt of a DISCOVERER from Vandenberg AFB. Launch terminated at T-60 by premature firing of the ullage rockets. Both the satellite vehicle and the THOR booster suffered damage. Launch date was set back to late February.

28-30 January 1959

Mr. McIntyre, Mr. Johnson and Air Staff briefed on proposed joint ARPA/USAF development of MIDAS.

30 January 1959

AFBMD published four new development plans - DISCOVERER,

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MIDAS, SENTRY and CARROUSEL. Plans in accordance with ARPA-directed reoriented program.

2-4 February 1959

Hq USAF, ARDC and ARPA briefed on DISCOVERER, SENTRY and CARROUSEL Development Plans. The proposed CARROUSEL was removed from further consideration.

12 February 1959

Mr. McIntyre in a memorandum for Secretary of Defense re-emphasized Air Force position as to the urgency of the development of the MIDAS system and stated that the Air Force considered MIDAS to be of highest priority. Mr. McIntyre recommended that the SAF approve the fund augmentation requested by the ARPA stating ARPA's request for emergency funds for MIDAS be considered as a prior claim to any Air Force requests for emergency funds.

16 February 1959

Amendment No. 1 to ARPA Order 48-59 approved "in general" the DISCOVERER program as presented to the ARPA on 4 February 1959. The approval authorized a 13-vehicle program and made available [redacted] for FY 1959.

16 February 1959

Amendment No. 8 to ARPA Order 9-58 approved "in general" the reoriented SENTRY program as presented to the ARPA on 4 February. Total funds authorized on ARPA Order 9-58 were decreased from $148.2M to $96.6M for FY 1959.

17 February 1959

ARPA Order 60-59 made $1.1M available to defray the cost of modification and operation of the downrange telemetry ship, Pvt Joe E. Mann, thru 30 June 1959. The order announced that effective 1 July 1959 operational and funding responsibility for the ship would be transferred to the Pacific Missile Range.

28 February 1959

DISCOVERER I-163-1022 successfully launched at 1349 hours from Vandenberg AFB.

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2 March 1959

Amendment No. 1 to ARPA Order 38-59 approved, subject to review, Phase I only of the MIDAS program and increased available funds under the order from $.75M to $8.0M. Instructions were given to AFBMD to submit plan for the procurement of ATLAS boosters and space vehicles for Phases II and III, long lead time items.

18 March 1959

AFBMD directed by AFABF to hold the six boosters removed by ARPA in Amendment 1 to ARPA Order 48-59, (Program reduction from 19 to 13) on production, notify AF when funds for these six were required.

24 March 1959

Amendment No. 2 to ARPA Order 48-59 approved the development and funding plan dated 30 January 1959 for the DISCOVERER program. The approval provided for a 13-vehicle program.

3 April 1959

Amendment No. 10 to ARPA Order 9-58 approved the AFBMD SENTRY Development Plan of 30 January 1959 "to the extent it pertains to payload programs of visual readout visual recovery, and ferret readout."

10 April 1959

Amendment No. 4 to ARPA Order 17-50 directed AFBMD to modify the Bell-Hustler stage to obtain dual burning capability, (Agena B) simplify guidance and control, and structures to contain payloads of arbitrary shapes that may be carried; increase propellant capacity ($5.1M). Deliver and launch at Pacific Missile Range two THOR-HUSTLER vehicles suitable for 215 pound TRANSIT #2 payload in 400 n.mi. circular orbit.

13 April 1959

DISCOVERER II launched from Vandenberg AFB. Satellite orbited, but because of cumulative adjustment of the orbital ejection timer, the capsule was probably ejected in the Spitzbergen, Norway, area. An unsuccessful area search (terminated 22 April) was conducted.

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16 April 1959

By ARPA Order 38-59, Amendment No. 3, Phase I of the MIDAS Development Plan (FY $20.2M) was approved. Program objective strongly reoriented to give priority to quantitative scientific and engineering data, with objective to predict success or failure of an operational alarm system, improvement and design.

1 May 1959

AFBMD submitted DISCOVERER Development Plan dated 30 April to Mr. Malcolm A. MacIntyre, Under Secretary of the Air Force. Major change over earlier 1 January plan was addition of ten flights, making a total of 25 flights.

8 May 1959

Mr. M. A. MacIntyre, Under Secretary of the Air Force, requested that the Secretary of Defense designate the Air Force as service responsible for operational employment and utilization of the MIDAS system.

18 May 1959

AFBMD informed that WS 117L had been removed from Master Urgency List, and DISCOVERER and SENTRY put on it with DX ratings. Action was underway to obtain a DX rating for MIDAS. AF priority for all three programs remained as 1-A with 1-1 precedence.

20 May 1959

Amendment No. 4, ARPA Order 48-59 approved DISCOVERER Development and Funding Plan dated 30 April 1959, on the 25-vehicle program. Funds were increased from [redacted]

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20 May 1959

Amendment No. 4 to ARPA Order 38-59 increased funds for MIDAS from $10.8M to $22.8M.

26 May 1959

ARPA directed that the mapping program be deleted from SENTRY. LMSD notified.

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3 June 1959

DISCOVERER III launched from Vandenberg AFB. Failed to achieve orbit because of less than nominal second stage performance and incorrect Pt. Mugu radar data indicating firing time. Data was received on the four mice passengers.

24 June 1959

AFBMD was informed that ARPA had laid down ground rules for the initial FY 1960 budget determination. These were: SENTRY $135.M, with SENTRY recovery program ($25M) to be deferred pending review; DISCOVERER, [redacted] for extension and completion of the series; MIDAS $18.M ARPA funds, with assumption Air Force will fund $38.9M when Phase II was approved. No increments to the above funds were available. AFBMD was to submit revised development plans based on the above instructions. Until FY 1960 appropriations word was received, funds would be on a monthly basis.

25 June 1959

DISCOVERER IV launched from Vandenberg AFB on a Polar orbit. While the launch was successful, the vehicle failed to achieve orbit because of less than normal second stage performance.

15 July 1959

Revised DISCOVERER, SENTRY, MIDAS development plans submitted to ARPA, as required in 24 June instructions.

20 July 1959

ARPA, USAF, ARDC, briefed on programs outlined in the revised development plans.

31 July 1959

ARPA and Hq USAF were advised that all efforts directed toward accomplishing long lead time items and meeting program schedules for MIDAS were being deferred pending approval of Phase II funding. The incremental funding provided in Amendment No. 3 to ARPA Order 38-59 had been exhausted as of 31 July 1959.

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3 August 1959

Message from Vice Chief of Staff Hq USAF, reaffirmed the FY 61 operational need date for MIDAS.

26 August 1959

Amendment No. 7 to ARPA Order 38-60 directed extensive realignment of the MIDAS development program, redefining tasks to be performed under Phases I and II. ARPA program was addressed to conducting satellite vehicle experiments, and efforts relative to system development significantly curtailed. Launch program was reduced from four to two at AMR, with major changes in launch objectives. FY 60 funding was limited to a total of $46,900,000. Within fund limitations, Phase III oriented studies only were authorized. Submittal of a new development plan was directed.

21 October 1959.

AFBMD was advised that on 18 September 1959, Secretary of Defense approved the assignment of MIDAS to the Air Force. Prior to assuming full responsibility for MIDAS, the Air Force was required to submit detailed R&D plans for review and approval by DDR&E. Also to be submitted was a detailed plan outlining proposed user relationships, and operational plan, and a logistics support plan.

17 November 1959

Secretary of Defense reassigned management responsibility for MIDAS from ARPA to Hq USAF, directed submittal of new development plan to DDR&E by 15 January 1960.

7 December 1959

Secretary of Defense transferred ARPA funds in support of MIDAS to the Air Force. Funding level for FY 60 remained at $46,900,00.

10 February 1960

MIDAS "Minimum Essential Development Plan" published and submitted to the Air Force Ballistic Missiles Committee for approval.

15 February 1960

AFBMD was advised that the AFBMC approved the MIDAS

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"Minimum Essential Development Plan." ARDC was directed to examine possibilities of conducting additional MIDAS launches during period April-December 1960.

27 February 1960

AFBMD was advised that OSD approved the MIDAS "Minimum Essential R&D Program" funding of levels of $51,900,000 for FY 1960 and $106,800,000 for FY 1961 were approved.

28 February 1960

MIDAS Preliminary Operation Plan published.

1 June 1960

AFBMD directed to determine effects of SAMOS program guidance on MIDAS and prepare necessary changes to MIDAS plans.

23 June 1960

AFBMD proposal to conduct two MIDAS Radiometric payload flights utilizing DISCOVERER flights present to AFBMC.

29 June 1960

AFBMD requested to submit revised MIDAS Development Plan.

15 July 1960

AFBMC approved MIDAS Radiometric Flights.

6-9 September 1960

One of the highlights of the year 1960, was a review of the program technical status and concepts by the President's Scientific Advisory Committee during 6-9 September 1960. The group consisted of 12 most eminent scientists, under the chairmanship of Dr. W. K. H. Panofsky, Stanford University. The committee concluded that despite problems, there was no doubt that the MIDAS concept is sound and that all engineering problems can be overcome. The committee also concluded that every attempt should be made to achieve the proposed operational schedule. Drs Jerome B. Weisner and Harold Brown sat as committee members.

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2-4 November 1960

Revised MIDAS Development Plan dated 24 October 1960 submitted to ARDC and Weapons Boards, was approved, and on 4 November was presented to AFBMASC. AFBMASC deferred approval of plan, issued supplemental guidance and requested resubmittal of plan.

5-6 January 1961

Revised MIDAS Development Plan dated 3 January 1961 submitted to ARDC was approved. Submitted to AFBMASC which deferred approval pending review by and submittal of recommendations of Weapons Board to AFBMASC. Air Defense Panel of Weapons Board reviewed briefing submitted to AFBMASC and arranged for mid-January review of amended 3 January 1961 plan at AFBMD in response to AFBMASC direction.

20 January 1961

Amended 3 January 1961 plan reviewed by Hq USAF team, was approved and taken back to the Air Force by the team for submittal to AFBMASC in mid-February.

10 February 1961

The AFBMASC considered the report and recommendations of the Weapons Board, deferred approval of the plan and directed it be further revised, but deferred further consideration of the revised plan after a successful Series II flight accomplished.

31 March 1961

New Development Plan, revised in accordance with AFBMASC direction, published.

18 April 1961

USAF authorized implementation of the FY 1961 & 1962 RDT&E "funding programs" up to commitment of FY 1962 funds; withholds TCC funding altogether.

24 April 196 1

AFSC approved 31 March 1961 Development Plan.

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17 August 1961

Design release of Series IV B satellite vehicles ("Systems Test") withheld.

18 October 1961

USAF advises SSD that MIDAS FY63 funding would probably be reduced from $185M to $100M, requests estimate of program impact.

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